OCTOBER, 1921

ENTOMOLOGICAL NEWS

Vol. XXXII No. 8

THOMAS BELLERBY WILSON
1807-1865

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PHILADELPHIA, PA.
THE ACADEMY OF NATURAL SCIENCES.
Logan Square

Entered at the Philadelphia, Pa., Post Office as Second Class Matter.
Acceptance for mailing at the special rate of postage prescribed for in Section 1102,
Act of October 3, 1917, authorized January 15, 1921.

ENTOMOLOGICAL NEWS

published monthly, excepting August and September, in charge of the Entomological Section of The Academy of Natural Sciences, Philadelphia, and The American Entomological Society.

ANNUAL SUBSCRIPTION, $2.50 IN ADVANCE
FOREIGN SUBSCRIPTIONS, $2.70 IN ADVANCE
SINGLE COPIES 30 CENTS

ADVERTISING RATES: Full width of page. Payments in advance.

One issue,	1 in.,	$ 1.20,	2 in.,	$ 2.40,	half page,	$ 4.00,	full page,	$ 8.00
Five issues,	"	5.50,	"	11.00,	"	17.50,	"	35.00
Ten issues	"	11.00,	"	20.00,	"	35.00,	"	70.00

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ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

THE ACADEMY OF NATURAL SCIENCES, PHILADELPHIA

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Miscellaneous Studies in the Family Aphididae (Hem. Hom.).

By ALBERT F. SWAIN, Fresno, California

(Continued from page 213).

13. **Dilachnus piceae** (Walker). Buckton; six slides (2 alate and several immature viviparous ♀♀, 1 apterous oviparous ♀, eggs, portions of head and thorax of 2 apterous viviparous ♀♀); "*Lachnus piceae* Walker." Walker records this species from *Abies picea* and *A. excelsa* in June in London (alate ♀♀) and Buckton from *A. excelsa* from Hampshire in October where he found oviparous ♀♀ and in December when eggs were present as well. Theobald records it from Kent. Buckton places it as a synonym of *Lachnus grossus* Kalt., but according to Kaltenbach's[8] description the third antennal segment of the apterous female is equal in length to the following three, while in Buckton's specimens it is considerably shorter. Following are the measurements of the five antennae found:

III	0.770	0.742	0.728	0.742	0.785
IV	0.280	0.280	0.308	0.290	0.312
V	0.420	0.378	0.420	.....	0.460
VI	0.196	0.238	0.196	.....	0.196

[8]Stettin Ento. Zeit., pp. 174-175, 1846.

In the alate females IV is about one-third as long as III, V equal to or slightly shorter than IV, and VI subequal to or slightly shorter than V. Walker states that IV is a little more than one-third the length of III, V slightly longer than IV, and VI not half the length of V.

This appears to be the same species the writer described from spruce at Berkeley, California, under the name of *Lachnus vanduzei* n. sp.[9]

There are two slides in the Buckton collection (2 alate and 1 apterous females) labeled *Lachnus longipes* Dufour, which are most certainly not that species nor are they *Pterochlorus roboris* (Linn.). An examination of the specimens shows that the apterous female is identical with that of *D. piceae* (Walker). In the apterous the rostrum is distinctly lanceolate, while in the alate it is more blunt, resembling in shape the rostrum of *D. tujafilinus* (Del Guercio). It is very similar to the one figured by Del Guercio[10] as a form transitional between his *Lachnus* and *Lachniella* on one side and his *Dryaphis* and *Eulachnus* on the other. The general body shape and size, the sensoriation, length and shape of rostrum are practically identical with specimens of *D. piceae* (Walker). Buckton noted this similarity but stated that these specimens were larger than specimens of the other species. As they now appear, such is not the case, however.

The following are measurements of the two alate females:

Body length		3.890		3.710
Width between eyes		1.700		.....
Width thorax		1.900		.....
Antennae				
total	1.820	1.954	.....	.....
III	.840	.840	.700	.700
IV	.280	.322	.280	.260
V	.280	.310	.255	.260
VI	.210	.260	.210	.....
Hind tarsi	.140	.140	.090	.....
	.420	.420	.350	
Wing length	8.07	8.38	6.78	7.10
width	2.91	3.10	2.40	2.45
expansion		18.00		.....

[9]Swain, A. F. A Synopsis of the *Aphididae* of California. Univ. Calif. Publ. Tech. Bull. Ent., vol. 2, no. 1, pp. 50-51, 1919.

[10]Redia, vol. v, p. 193, fig. 7, 1908.

III has from 13 to 20 large circular sensoria scattered the full length of the segment, IV has 2 to 4 secondary sensoria, V 1 to 2 secondary sensoria and the usual primary sensorium, VI has the usual primary and accessory sensoria.

From all structural characteristics this is *Dilachnus piceae* (Walker), but the host plant which Buckton records causes a question. Practically all species of *Dilachnus* occur on conifers, *piceae* being recorded from spruce. Whether Buckton was mistaken in his host plant record, whether there is an actual migration in this species between oak and spruce, or whether it is a distinct but very closely related species is the question. The only other species the writer calls to mind that migrates from a conifer to a deciduous tree is *Prociphilus venafuscus* (Patch) found on ash and Douglass fir in the Pacific Coast sections of America. From all available evidence the writer feels that *Lachnus longipes* Dufour of Buckton is in reality *Dilachnus piceae* (Walker).

14. **Dilachnus pinihabitans** (Mordw.) Walker; two slides (2 alate, 1 apterous, several immature ♀ ♀); "*pinicola* Kalt.; Scotch fir; Southgate; June 4-47" and "*pinicola* Kalt.; Spruce, Southgate; June 5-47." Buckton, one slide (2 alate ♂ ♂, 2 apterous oviparous ♀ ♀, 3 apterous viviparous ♀ ♀); "*pinicola* Kalt."

These specimens do not agree very well with Kaltenbach's description nor with Del Guercio's description of *Eulachnus pinicolus* (Kalt.). The relative measurements of antennal segments in *E. pinicolus* (Kalt.) Del Guer. are 7, 7, 43, 22, 24, 18, while in these specimens they are 11, 11, 64, 27, 29, 15; the main discrepancy being in the last antennal segment, which is approximately one-half the length of the fifth rather than three-fourths. The actual measurements of two alate females are:

III	.644	.658	.644	.630	average .6365
IV	.266	.266	.266	.308	.2765
V	.280	.294	.294	.308	.2940
VI	.154	.154	.168	.154	.1575

Del Guercio states that the first joint of the hind tarsus is half as long as the second, thus falling into his genus *Eulachnus*, while in these specimens it is but slightly more than one-third (11-28). These specimens do agree, however, with both Mordwilko's[11] and Cholodkovsky's[12] descriptions of *pinihabitans*

[11]Zool. Anzeiger, v. 18, p. 98, 1895.

[12]Horae Soc. Ent. Ross., v. 31, pp. 638-640, 1898.

Mordw. and the writer considers them as identical. Consequently the *Lachnus pinicola* Kalt. of both Walker and Buckton is really *Dilachnus pinihabitans* (Mordw.). Theobald records *pinicolus* Kalt. from Kent and Morley from Suffolk and the Isle of Wight. Jackson records *pinicola* Kalt. from spruce fir in Evanton and Kent and lists it as a synonym of *abietis* Walker. As pointed out above (see No. 10), a specimen of *abietis* Walker in the Buckton collection is really *hyalinus* Koch, so perhaps Miss Jackson refers to this species. She also records *pinihabitans* Mordw. from Scotch fir in Moreyshire.

15. **Dilachnus taeniatus** (Koch). Walker; three slides (1 alate, 8 apterous ♀♀); *"pini* L.; Scotch pine; Southgate; June 25-47." Buckton; four slides (numerous immature ♀♀); *"pini* L.; *Pinus sylvestris;* Meadfield; June." The following brief description is drawn from Walker's specimens:

Alate viviparous female. Head about twice as broad between the eyes as deep; antennae reaching to the middle of the thorax, dark except base of III, which is lighter; a few stout hairs on I, II, and III. Secondary sensoria on III extend from near the tip to about two-thirds the way to the base; small, circular, uneven, numbering 6-7. IV with one secondary sensorium about the middle. III about as long as IV, V, and VI combined, IV and V equal, VI slightly shorter. III 0.644, IV 0.252, V 0.210, VI 0.196, total 1.526 mm. Body length 5.17 mm., width of thorax 2.26 mm., wing length 5.30 mm., width 1.75 mm., expansion 12.20 mm. Cornicles small and inconspicuous, being but little more than pores, about 0.085-0.110 mm. in diameter. Cauda large and prominent, half-moon-shaped. Hind tarsi long, first joint 0.28 mm., second 0.50 mm. Rostrum reaches to near the base of the abdomen or to the posterior edge of the second abdominal segment. Body robust and covered with many short stiff hairs. Wings long, clear, and with twice-branched media.

Apterous viviparous female. Similar to alate, the body hairs being stiffer and more pointed. Antennae reach to the base of the abdomen and are without secondary sensoria. III 0.630, IV 0.308, V 0.350, VI 0.224, total 1.722 mm. Body length 4.52 mm., width of thorax 1.35 mm., hind tarsi, first joint 0.252, second 0.476 mm. Rostrum reaches to base of the second abdominal segment.

A study of these specimens shows that they are very similar to *Eulachnus taeniatus* (Koch), although in many respects close to *Eulachnus nudus* (De Geer). In *taeniatus* (Koch) of Del Guercio the third antennal segment is longer in comparison

with the following segments than in these specimens. In this respect and in sensoriation it fits *nudus* (De Geer) of both Del Guercio and Cholodkovsky, except that IV certainly is not "much" longer than VI. Furthermore the rostrum does not reach to the end of the abdomen, in reality scarcely to the middle. The cornicles are considerably smaller than those figured by Del Guercio for *nudus* De Geer. For these reasons the writer considers that *Lachnus pini* (Linn.) of Walker and Buckton is *Dilachnus taeniatus* (Mordw.), and so places it as a synonym.

The Genus Diamesa Meigen (Diptera, Chironomidae).

By O. A. JOHANNSEN, Cornell University, Ithaca, New York.

Among the Chironomidae, taken in a tent trap which was set over a riffle near Fall Creek, Ithaca, N. Y., were specimens of a species of *Diamesa* with yellow thorax. As this form appears to be new, it is described herewith. There are several European species which resemble it, *D. gaedii* Meigen approaching it most closely. This European species differs, however, in having a brownish border at the anterior end of the median, and at the posterior end of the lateral thoracic stripes; a median yellow stripe on the metanotum, and a relatively longer fore basitarsus.

Diamesa fulva n. sp.

♀. Length 2.2 mm. Head yellow, a diffuse brownish spot on each side of the median suture on the vertex; front broad, over half the width of the head, including eyes, in frontal view. Eyes black, somewhat emarginate, glabrous, facets large. Antennae with eight visible segments, yellow basally, apical segment fuscous, with dusky hairs; the basal segment large, disc-like, the second, third and fourth segments slightly longer than broad, second and third not sharply separated from each other, fifth, sixth and seventh about twice as long as broad, eighth fusiform, not quite as long as the preceding three taken together, total length of antenna 0.25 mm. Epistome subtriangular, subfuscous, dorsal surface with rather long bristly hairs, transverse suture very distinct; palpi four-segmented, first and second segments subequal, third slightly longer, fourth about twice as long as the second; total length of palpus about 0.5 mm.

Thorax yellow, whitish pruinose, subshining, dorsum with three broad, more or less distinct ferruginous vittae, laterals anteriorly, mid-

dle one posteriorly abbreviated; collar incised, angles rounded; scutellum yellow, large, tumid, with very few yellowish hairs; pleura pale yellow, pectus deeper yellow; metanotum blackish brown.

Abdomen elongate oval, compressed, hairs pale; tergum blackish brown, posterior margins of the segments paler; venter dull green, posterior margins of the segments paler green; valves of the ovipositor about as broad as long, racket-shaped, yellow.

Wings hyaline, with distinct milky tinge, anterior veins heavy, yellowish, with few setae; posterior veins almost colorless; posterior branch of radius arched, ending slightly proximad of the tip of the media, costa produced over one-fourth the distance beyond the tip of the radius towards the tip of the media; wing surface finely and irregularly roughened as in *D. waltlii*, without true punctations; anal lobe strongly produced, hind margin with a fringe of pale hairs. Halteres white.

Fore legs subfuscous, except coxae and extreme bases of femora which are yellow, first tarsal segment over 0.8 as long as the tibia; middle and hind legs, including coxae, yellow; knees, extreme tips of tibiae and basal tarsal segments, and the whole of the last four tarsal segments fuscous; tibial spurs distinct, posterior pairs longest; fourth tarsal segments on all the legs broadened and emarginate apically, and but little over half as long as the fifth segment; tarsal claws simple, empodium shorter than the claws.

Ithaca, New York, May 30, 1914.

The above description was largely drawn from a pinned specimen which was later mounted on a slide. The *type* will be placed in the Cornell University collection. The single pinned paratype, from the same locality, does not differ from the above.

Though Kieffer mentions "hairy eyes" among the generic characters of *Diamesa* sens. str., I am not inclined to erect a new genus for the species on this character alone, especially as the male is still unknown. Our three species of *Diamesa* as now restricted may be distinguished as follows:

a. Smaller species, female less than 2.5 mm. long; thorax yellow; eyes glabrous. ....*D. fulva* n. sp.

aa. Larger species, over 4 mm. long, thorax black or cinereous.

b. Terminal antennal segment of male twice the length of the others combined; keel of the last tergite produced caudad about as far as the apex of the basal segment of the clasper and beyond the tip of the inner process of this segment (fig. 5, Muttkowski, 1915) .....*D. mendotae.*

bb. Terminal antennal segment of male not over 1.6 times as

long as the others combined including the large basal segment, or twice the length of segments 2 to 7 combined; dorsal keel not produced as far as the tip of the inner process of the basal segment of the clasper; eyes densely short haired, all claws of the male somewhat broadened at the tip, flat and brush like; fore basitarsus nearly 0.7 as long as the corresponding tibia. *waltlii.*

Mr. Muttkowski (p. 118, 1915) calls attention to the noticeable difference in the form of the larval labium of *D. mendotae* and *D. waltlii* and ventures the opinion that I may have confused my material of *D. waltlii* and *Cardiocladius* (*Thalassomyia*) *obscura* when writing my papers (1903, 1905).

There is however no error in my rearing records of these species. In the first place, the arrangement of the teeth in the labium is subject to considerable variation within a genus as may be seen in *Chironomus,* and there seems to be no reason why this should not also be so in *Diamesa.* Secondly, I find in my notes the following: "Six reared specimens of *Diamesa* and their six cast larval and pupal skins. Reared Nov. 24. Material collected from swift water, Cascadilla Creek, Nov. 14." The figures in my 1905 paper were based in part on this material. The figures in 1903 paper were made from specimens taken at an earlier date.

In the third place, the larva of *Thalassomyia obscura* is not full grown until spring, the adults appearing from May to September, while the larva of *Diamesa waltlii* in this locality is full grown only in the fall and winter, the adults appearing from November to April. Specimens collected in late fall and early winter therefore cannot be confused.

Concerning the early stages of *D. fulva* all that can be said is that the larvae must live in flowing water, since the adults were captured under a tent trap placed over a riffle. The larvae of the other two species found in this country and that of *T.* (*Cardiocladius*) *obscura* may be distinguished as follows:

1. Middle tooth of labium at least as wide as three lateral teeth, broadly truncate and with convex margin.....*T. obscura*
2. Middle tooth of labium broad, margin concave.....*D. mendotae*
3. Middle tooth of labium narrow, not twice as wide as the first lateral tooth. .....*D. waltlii*

In my balsam mounts of the pupal exuviae of *D. waltlii* I failed to see the respiratory filament. In a pupa of *Diamesa*, which I believe to be *D. waltlii*, recently collected in Cascadilla Creek on the rocks near the falls, the filaments are visible as delicate colorless tubes as described by Muttkowski for *D. mendotae*. In other particulars, including the arrangement of the marginal setae on the lateral carina, Muttkowski's description of *D. mendotae* applies equally well to *D. waltlii*.

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1905. JOHANNSEN. Aquatic Nematocerous Diptera II. N. Y. State Museum, Bul. 86: 76-330.

1915. MUTTKOWSKI. New Insect Life Histories. Bul. Wis. Nat. Hist. Soc. XIII: 109-122.

A State Insect Survey Project.

By FRANKLIN SHERMAN and C. S. BRIMLEY, Division Entomology, State Dept. Agr., Raleigh, North Carolina.

In former years the writers, jointly and separately, published a number of papers in ENTOMOLOGICAL NEWS bearing on the insect fauna of North Carolina,—giving lists of species in certain groups, distribution and seasonal notes, as indicated by our records. We were avowedly accumulating data on the insect life of the State as a whole. We believed that this was desirable, as no such study had been undertaken in any neighboring state, and we considered that the variety of conditions presented in North Carolina, render it a "Key" state to the general insect fauna of the southeastern group of states. Florida is an exception for obvious reasons.

From time to time we have received inquiries regarding this work, the methods and progress.

The collections and records have steadily increased in volume, in interest and we believe in scientific value. They are a source of continual reference and study. And after twenty years we are making better progress than at any time in the past.

In 1915 "A Study of the Insect Fauna of the State, etc," was formally listed as one of the permanent projects of work

of the Division of Entomology, N. C. State Dept. Agriculture. In December, 1919, the junior author was engaged primarily for this project, since which time the work has gone forward with increased rapidity.

Each species (or recognized variety) of insect known to exist in the state is listed on a 5x8 inch card.—One side of the card is closely lined, on the other side is an outline map of the state. On the lined side is written (at top) the name of the species,—its number, page or other designation in some recognized check list, (if such), and a brief indication of its general distribution in the United States and elsewhere. On the lines below are listed the localities in the state at which adults have been taken, dates of capture, etc., all in condensed form. Very brief notes on food-plants and transformations may be included. On the map (on back) we place a plainly-visible dot at each locality where the species is taken in the state. We do not number the list of localities and number the dots to correspond,—postal-guide makes this unnecessary.

The front of the card will hold entries for from 15 to 20 localities. By the time the card is filled the entries will give a general idea of the distribution (both geographical and seasonal) of the species, and by the time a second card is filled one can outline with fair positiveness the status of the species.

In this work one soon learns that every species of insect does not occur everywhere and at all times. While there are many common species which our records show to occur throughout our state (equally common everywhere—?), yet there are very many other species which have been taken only in well-defined areas, and (adults) often only in a very limited portion of the year. And many species, even some of the larger and more conspicuous ones, have been taken in only one or two localities.

One soon grasps the idea of life-zones—(1) that there are such zones, and that a balanced conception of them is helpful and enlightening to the mind; (2) that their boundaries are (usually) not sharply defined and that there are many instances of a species belonging typically to one zone intruding itself into the territory of an adjoining zone. This has its application in our economic work in outlining the areas in which certain economic insects are, or may be, abundant.

We find that many species occur commonly in spring, less commonly in late summer and fall, and sparingly if at all in midsummer,—thus our seasonal record of a species may be fairly complete for April or May and for September, long before we are able to show its presence throughout July and August. This also has its economic significance, as it gives a strong hint of the general life-history.

We have intended that these records shall adequately answer three simple questions (others incidentally):—(1) What is it? (2) Where does it occur in the state? (3) When is it to be found?

The undertaking involves the handling of numerous specimens and much routine work in arranging and recording. It involves much work in classification, in which we enlist the help of specialists as far as possible. Always admitting the possibility of error, we consider that on the whole our collections and records are reliable. Specialists working in any group may call on us for our records, and in many groups we would be glad to submit unnamed material for determination. One of our difficulties has been to secure determinations in the various groups. More than once it has occurred that pretentious papers have recorded the distribution of a species in such a way as to indicate that it does not occur in the southeast, when we have named specimens of the species in our state insect survey collections—presumably correctly named.

We believe that an entomologist should have some conception of the variety and distribution of his insect fauna, and if this be co-ordinated with a similar knowledge of birds, reptiles, etc. (as has been done to a large degree in this state) so much the better.

At the end of 1914 we counted the species listed in our card-catalogue, and this has been repeated each year since, at the same time making occasional eliminations and changes to correspond with latest nomenclature as best we can. While some of our records are from literature and represent species not in our collections, yet in the main our records are substantiated by our specimens, or by ones "retained" by specialists—would that we had more specialists in public employ and elsewhere!

The following table shows the progress of this work from the end of 1914 to date: In this showing we count most of the smaller groups in the Neuroptera.

North Carolina Insect Survey,—Progress, 1914,—*to May* 31, 1921.

	Number Species Recorded for State at End of							May 31
	1914	1915	1916	1917	1918	1919	1920	1921
Orthoptera ...	179	179	185	185	185	187	189	189
Hemiptera ...	399	562	591	611	665	688	773	776
Neuroptera, *etc.*	248	255	266	267	268	272	286	290
Lepidoptera ..	764	765	767	772	773	788	863	869
Diptera	646	682	703	723	743	804	951	1,045
Coleoptera ...	1,867	1,926	1,987	2,011	2,016	2,041	2,090	2,257
Hymenoptera .	327	328	359	371	394	465	643	747
Totals	4,430	4,697	4,858	4,940	5,044	5,245	5,795	6,170

Comments on Table:—We had the Orthoptera fairly well worked up before 1914 hence few additions since. The increases in Hemiptera have been largely in Homoptera, and there is yet plenty of room for additions in Capsids, Aphids, Coccids, etc. While some groups under Neuroptera have been fairly well exploited we lack much in smaller water-breeding forms. The larger moths of Raleigh and the butterflies of the state as a whole were fairly well worked before 1914, and intensive collecting of the smaller moths has not yet been attempted. The progress in Diptera has been fairly constant and well distributed through the order, still lacking much in the smaller species of course. Coleoptera were well along at beginning of the period,—a number of new records were added from the distributional notes in Leng's Check-list,—of course we have unidentified material, especially of smaller species. In Hymenoptera much of the progress has been very recent, with numerous small forms yet unaccounted for.

As a whole, the list shows an average gain of 165 species per year for the period 1915-1919 inclusive, but the growth has been more rapid since the assignment of a worker mainly to this project. Many assistants and co-workers have contributed generously, though careful amateur collectors are scarce in this section.

We hope to keep it up.

Two New Species of Hesperidae (Lepid., Rhop.).

By Henry Skinner

Pseudosarbia flavofasciata n. sp.

♂.—Head, palpi, pectus, patagia, undersides of femora and abdomen crimson.

Upperside. Primaries chestnut brown with a quadrate spot of yellow at the end of the discoidal cell and a postmedial yellow band crosses the wing from the costa to the lower median nervure. The first part of the fascia is made up of five spots, the next spot is quadrate and the third is triangular and the fourth quadrate with an upward projection or tooth.

Secondaries chestnut brown with a postmedial yellow fascia, extending from the costa toward the inner margin for 11 mm. Fringe yellow.

Underside. Primaries with inner two-thirds of the wing darker than above and the outer third purplish vinaceous. Yellow fascia as above, edged with black and connecting along the costa with the spot at the end of the cell. Base of the wing also yellow.

Secondaries purplish vinaceous with the yellow fascia repeated and edged with black; at its lower end it connects with a yellow band running to the base of the wing, which is also yellow and on this yellow basal area are two black dots. Expanse (one wing) 27 mm.

Described from two specimens taken by H. H. Smith in Chapada, Brazil. *Type* and paratype in the collection of The Academy of Natural Sciences of Philadelphia.

I sent a drawing of this insect to Captain N. D. Riley to see if it was represented in the British Museum collection. He reported that they had one specimen in the Godman and Salvin collection from Chapada, Matto Grosso, Brazil (H. H. Smith, January.) It is related to *Pseudosarbia phoenicola* Berg. Captain Riley says, "I have looked up the description of *phoenicola* and find we have some specimens of it. It is rather larger and darker and has the ground color the same above and below and the yellow bands of upperside broader and much more regular than the other species. This yellow band too, on the forewing of *phoenicola* is virtually parallel with the outer margin; in the new species from vein four to the costa is practically at right angles to the costa."

Pyrrhopyge sangaris n. sp.

♂.—Palpi crimson with tips black. Abdomen and legs dark green black.

Upperside. Primaries shining green-black. Secondaries shining green-

black, somewhat darker than the primaries, with a blood-red spot near the anal angle. This spot is quadrate, 4 mm. wide and is 3.5 mm. from the inner margin and about the same distance from the outer margin.

Underside. Primaries as above but lighter in color with the crimson spot repeated but somewhat smaller and rounder. Expanse (one wing) 23 mm. Inner margin of hind wing 21 mm.

Type one male in the collection of The Academy of Natural Sciences of Philadelphia, taken at Hacienda Cincinnati, Sierra San Lorenzo, Magdalena, Colombia, July 23rd, 1920, Academy Colombia Expedition, Rehn and Hebard.

This handsome species has a superficial resemblance to *creon* Druce but has the shape of *phidias* Linn.

Homopterological Gleanings, No. 1.

By Z. P. METCALF, North Carolina State College and Experiment Station, West Raleigh, N. C.

INTRODUCTION.

In this series of papers it is proposed to bring together odds and ends that have accumulated in the course of our studies of the Homoptera. It is our hope that these stray bits of information may be as useful to others as they have been to us in the past.

DATES OF BURMEISTER'S "GENERA INSECTORUM."

I have had in my possession for some years a copy of Burmeister's *Genera Insectorum*, Hefts 1 to 5 in the original covers, and believe that the following notes should be added to what Kirkaldy has already written[1] in regard to the dates of publication. The dates given in each case are the dates on the original covers and only the homopterous genera are included.

Heft 1, 1838, *Lystra, Acocephalus, Bythoscopus, Eurymela.*

Heft 2, 1838, *Selenocephalus, Coelidia, Eupelix, Jassus.*

Heft 3, 1839,[2] *Ulopa, Dorydium, Cephalelus, Ledra.*

Heft 4, 1839,[2] *Gypona, Xerophloea.*

Heft 5, 1840, *Paropia.*

Until further evidence is produced it would seem that it would be better to accept the dates of publication for these parts as given in the parts themselves. I do not think that such acceptance would affect the nomenclature as it now stands, my interest being simply to present the

[1] The Entomologist, xxxviii, 307 and 308, and The Entomologist, xli, 13.

[2] Kirkaldy gives 1838.

facts, a thing I should have done years ago, but the matter was not called to my attention forcibly until recently in going over the manuscript of the forthcoming Bibliography of the Homoptera of the World.

Dictyophara versus Dictyophora.

Van Duzee in his recent catalog of the Hemiptera, 1917, gives *Dictyophora* (*sic*) and cites Germar, Silb. Revue Ent. I, 175, 1833, as authority. This, however, is wrong, as I have recently determined from an examination of Germar's paper, where the name is spelled *Dictyophara*. I have reasons for believing that the paper in my possession is an original copy, as it has bound with it an autographic letter by G. Silbermann to M. Audouin, dated "Strasbourg 16 Mars 1833." I presume that this matter has been confused because Fieber states in a footnote after the genus *Dictyophara* in his *Les Cicadines d'Europe*, 209, that "Dr. Stål rectifie d'apres δικτυον, rete--et φαρος pallium, tegmen, dans Hem. Afric. IV, 1866, p. 154." Stål is, however, apparently only giving the derivation of the name as he states in a footnote, Hem. Afric. IV, 154, "a δίκτυον = rete et φαρος = pallium, tegmen." The facts in the case as far as I have been able to trace them are Germar wrote originally *Dictyophara*, but Spinola 1839 started the trouble by writing *Dyctiophora* Germar. In this he was followed by Duponchel who examined Spinola's paper apparently before it was published. See below. Stål corrects this in his *Hem. Afric.*, 1866, to the original spelling, but two years later Kirschbaum writes *Dictyophora*. Stål was followed apparently by all subsequent writers until Melichar in his *Monographie der Dictyophorinen* revives the name as spelled by Kirschbaum. Van Duzee follows Germar and Stål in his *Check List of Hemiptera*, but changes to the Kirschbaum-Melichar spelling in his *Catalogue of Hemiptera*. The genus should stand, therefore, *Dictyophara* as originally spelled by Germar and should have as synonyms *Dictiophora* (Germar), Spinola and *Dictyophora* (Germar) Kirschbaum. This matter would not be of so much importance if it were not for the fact that modern classification bases a subfamily upon this genus and in the minds of many this subfamily is entitled to family rank.

The Date of Duponchel's Review of Spinola's "Essai sur les Fulgorelles."

Van Duzee gives Duponchel's review of Spinola's *Essai sur les Fulgorelles*, Revue Zoologique, II, 199-206, precedence over Spinola's paper in Ann. Soc. Ent. France, VIII, 133-337, 339-454. This I believe is in error. Duponchel dates his paper "Paris, 9 juillet 1830," and states in the introduction that he is publishing this preliminary review because Spinola is offering a new classification. The *Revue Zoologique* was not published, however, until 1840, according to the title page of the publication, and in the meantime Spinola's paper was published in 1839 in the *Annales*. Therefore Spinola's names take precedence over Duponchel's names throughout.

A Second Nearctic Species of Protura, Acerentulus barberi, New Species.

By H. E. Ewing, Bureau of Entomology, U. S. Department of Agriculture, Washington, D. C.

Since the discovery in 1907 of the very interesting primitive insects, the Protura, by the Italian zoologist and entomologist, F. Silvestri, only a single species has been reported, as far as can be learned, from the Nearctic Region. This species was described in 1909 by Silvestri, from New York, as *Eosentomon wheeleri*. Aside from this single record by Silvestri, the presence of Proturans in the Nearctic Region has been only a matter of conjecture until quite recently, when their occurrence in the vicinity of Washington became established.

Some years ago Dr. A. C. Baker, of the Bureau of Entomology, collected three minute arthropods at East Falls Church, Virginia, which he determined as being Proturans. The matter was not given any special attention at the time, and a specific determination was not made. Also no record was published of this discovery. Since then, apparently these primitive insects have been overlooked in the vicinity of Washington until the winter of 1920-21. Their occurrence here was made definitely known by the finding by H. S. Barber of a single living specimen in humus that had been brought to the National Museum from Plummer's Island, Maryland, by R. C. Shannon some weeks previously. Soon after the discovery of the first specimen two more were found under stones near the mouth of Dead Run, Virginia (opposite Plummer's Island) by H. S. Barber and W. M. Mann, and since then specimens have been taken in some numbers in decaying leaves, by the writer, at Takoma Park, Maryland.

This important discovery of representatives of the order Protura in this vicinity has been reported to the Entomological Society of Washington in the form of a note by Mr. Barber at the March 3rd meeting, and Mr. Barber has suggested that the writer make a specific determination of the Proturan. This has been done, the species proving to be new. It is here named *Acerentulus barberi*, new species, in honor of Mr. Barber.

An examination of the specimens of this species shows it to be quite different from *Eosentomon wheeleri* Silvestri. Silvestri's species belongs to the family Eosentomidae, which family is characterized by the presence of a tracheal system and by having all the vestigial appendages of the abdomen two-segmented. The species here described belongs to the family Acerentomidae, which family is characterized by having no tracheal system and by having the second and third pairs of vestigial appendages of the abdomen much more reduced than the first pair and only one-segmented. The formal description of the species follows:

Acerentulus barberi, new species.

♀.—Color in life a uniform yellow, which gives strong reflections when in the direct sunlight. Head long, broadest slightly in front of the posterior margin; labrum not produced into a process; pseudoculi inconspicuous.

Prothorax very short, about twice as broad as long, and slightly broader than the head, provided above with a transverse row of four setae, the outer being slightly the shortest. Mesothorax broader than long and about twice as long as prothorax, sides convex, its longest lateral seta equal to about one-half its width; metathorax longer and broader than prothorax and broader than long, sides slightly convex and somewhat divergent, longest lateral seta equal to one-half the width of thoracic segment itself.

Abdomen of medium length, segments increasing in width from I to III, then decreasing gradually to VIII; VII twice as broad as long and with sides almost parallel, but seen to converge slightly toward the rear; VIII similar to VII in shape, but much smaller, with a band near its anterior margin marked with microscopic longitudinal striations; segments IX, X and XI very short and ring-like; XII longer and broadly rounded on its free margin. During life the last four segments of the abdomen are held much of the time almost completely telescoped into VIII. Tergal apodemes present on first eight abdominal segments, when viewed from above, seen to be only very slightly curved and laterally branched. Dorsal setae of abdomen moderate, the longest ones on segments II and III being scarcely equal to one-half the widths of these segments. Vestigial appendages of first abdominal segment conspicuous, about as broad as tibia III, first segment fully twice as long as broad and cylindrical, last segment a truncated cone, about as long as broad at the base; vestigial appendages II and III subequal, being minute and cone-shaped.

Legs moderate; first pair almost twice as long as the subequal last two pairs. Claw of leg I very long, being about half as long as the tarsus, straight for most of its length, but hooked toward the end.

Length with abdomen about normal, 1.05 mm.; width at the region of the third abdominal segment, 0.22 mm.

Type locality.—Takoma Park, Maryland. *Type.*—Cat. No. 24,162, U. S. N. M.

Described from the type specimen only, which is a female, collected by the writer, Feb. 14, 1921, at Takoma Park, Maryland, in decaying leaves. This female was taken from a small pocket on the side of a hill only a few rods from my home. The specimen is mounted in balsam with the legs extended and is in fine condition. Because of the present lack of the proper analysis of specific characters in the Protura, it appears desirable to have included in this description only a single individual. After a more complete study has been made autotypes can be designated.

The Curious Mating Habit of Megarhyssa atrata (Fab.) Hymen.: Ichneumonoidea).

The discovery of the curious mating habit of *Megarhyssa atrata* throws some light on the reason for the previous emergence of the males. Very little seems to have been recorded concerning the mating habits of the Ichneumonoids. It is the rule among these insects that the males emerge before the females, especially those parasitic on wood-boring species. In this respect *Megarhyssa* is a striking example.

During the early season before the females of *Megarhyssa* have appeared in numbers, groups of males may be observed congregating at a certain point on a dead tree that is also a host for *Tremex columba* (Linnaeus).

On May 9, 1921, at Harrisburg, Pa., the writer visited a dead standing beech, which had been the host for *Tremex columba* for several years, and in which two and possibly three species of *Megarhyssa* were found ovipositing during preceding summers. On this date several groups of from six to ten males of *Megarhyssa* were found. A closer examination showed that in each group one male had the whole of his abdomen inserted into the tree, through a hole either chewed through the surface by the emerging female, or from the outside by the male. This hole was only large enough to admit the abdomen of the male, although the other males present were attempting to insert their abdomens.

The tree was then cut into at this point, and the female of *Megarhyssa atrata* was found mating with this male. The blow from the axe disturbed the pair and separated them before definite observations on the process could be made; but it was apparent that the females of *Megarhyssa* are fertilized before they emerge. The males probably are attracted by scent, and congregate at the point from which she will emerge.

S. A. Rohwer states* that *Megarhyssa atrata* (Fab.) had not been definitely associated with its host. It was found in this tree as a parasite of *Tremex columba* (L.), as are all but one of the species of *Megarhyssa*.—A. B. Champlain, Pennsylvania Bureau of Plant Industry, Harrisburg, Pa.

* Proc. U. S. Nat. Museum, Vol. 57, No. 2317, p. 429. 1920.

ENTOMOLOGICAL NEWS

PHILADELPHIA, PA., OCTOBER, 1921.

That He Who Runs May Read—

We write our scientific papers, presumably, for others to read and use. Often those papers do not receive that attention to which, we think, they are entitled. Many papers are published and so a competition, as it were, is set up between them as to which shall be read and which neglected. The more easily a paper can be read and understood, the more likely it is to be read. Obviously, to make a paper easily comprehensible should be an author's first care, but it is equally obvious that we do not exert that care as far as we might.

One source of annoyance to the reader of illustrated papers arises from having to compare figures relating to different forms on a plate and to hunt for the names of the species in an "Explanation of Plates," or even in a list at the bottom of the plate. Why would it not save time and irritation and prevent neglect if we put the specific name (or an abbreviation of the name) alongside each figure, or group of figures, on the plate itself? This might detract from the artistic appearance of the plate (although not necessarily so), but, after all, our plates are for scientific, not artistic, ends. We invite all authors to consider this suggestion, especially those who expect to contribute plates to the NEWS.

Manual of the Hemiptera of Eastern North America in Preparation.

The special studies of the undersigned have now reached the point where it seems possible to produce an extensive and approximately complete work on the Hemiptera (Heteroptera) of the eastern portion of the Continent, and rapid progress is now being made on it. It is intended that the work will not only provide the means for the identification of the species, but also include full treatment of the biology and literature of the group. The authors will be glad to receive collections for study and identification.—H. G. BARBER, H. H. KNIGHT, H. M. PARSHLEY, J. R. DE LA TORRE BUENO.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE

Changes of Address.

Dr. C. L. Metcalf, for the past seven years Professor of Entomology in Ohio State University, has resigned to accept the position of Professor of Entomology and Head of the Department of Entomology in the University of Illinois. He should be addressed in care of the University at Urbana, Illinois, after September first.

On and after Aug. 1st, 1921, my residence address will be 3006 Chestnut Street, Milwaukee, Wisconsin, instead of 2120 Grand Avenue, after [illegible] to me there.—GEORGE P. BARTH, M.D.

R. Tompkins de Garnett has returned from a year's visit to France and will now be permanently located at 583 Merrimac Street, Oakland, California. While at Paris he made extensive notes in the National Museum there on certain groups of Coleoptera.

Crane-Flies of New York.

Cornell University has just issued Part II of "The Crane-Flies of New York," by Charles Paul Alexander. This part, which is published as Memoir 38 of the University Agricultural Experiment Station, deals with the biology and phylogeny of the crane-flies and gives representative crane-fly life histories, external and internal morphology, and concludes with keys and descriptions. The monograph contains about 450 pages.

To persons interested in research in the field covered by the Memoir, copies will be sent as long as the supply lasts. Ask for M-38, and address requests to Office of Publication, College of Agriculture, Ithaca, New York.

On the Destructive Method of Dismembering Types for Preservation in Riker Mounts.

In the editorial entitled "Depositories of Type Material" by J. A. G. R., in the June number of ENTOMOLOGICAL NEWS, that portion touching on the above subject obviously refers to the policy adopted by the present writer of placing certain fragile Orthoptera in cotton mounts. But the adjective "destructive," as applied to this method of preservation is certainly not justified, nor is "dismembering" a method of preparation to be necessarily decried. In certain instances intentional dismembering was indeed done, as in occasional cases of Blattidae, where the legs, usually from one side of the body only, were removed to facilitate the examination of armature, &c., or the abdomen removed to better show its characters. However, when one remembers that much of the type material of Orthoptera in the National Museum came from the collections of early authors, the absence of parts and frequent partial dismemberment should not invariably be attributed to wilful vandalism on

the part of the present custodian. And that the types of such deciduous-limbed creatures, as many of the Orthoptera, would be better preserved if placed in Riker mounts, or other protective devices, is obvious when one notes the condition of most types of the older authors. For every such type specimen, in even a tolerably fair state of preservation, there are many so far gone to wreck and ruin as to be of little practical value. Realization of such conditions influenced the writer to incase certain material in Riker mounts, and the main reason for abandoning this system, even in part, is that the claws and other armature of specimens are prone to cling to the cotton when removed for examination, thus often causing the breakage of legs, &c. But even in such instances the detached appendages are not lost, as they so often are if knocked off in a pinned series, and it is thus seriously questionable if it is not after all a mistake to discontinue this method of preserving the types of fragile insects. However, this system has been for the most part superseded in this collection by that of segregating types and representative sets in individual trays, a system now in general use in the National Museum, except in the Macrolepidoptera.

The matter of type deposition in privately endowed institutions as compared with those publicly or nationally financed is one subject to discussion, and may be better left to others.—A. N. CAUDELL.

Honorary Degrees Conferred on Entomologists.

The University of Indiana conferred the degree of LL.D. on W. S. Blatchley on Wednesday, June 8, 1921. It is customary for the recipient of the degree to be introduced by a member of the faculty, with a short statement, giving the reasons for conferring it. Dr. David Mottier, of the department of botany, did this for Mr. Blatchley in the following complimentary terms:

"Willis Stanley Blatchley—Native of Connecticut; educated in the schools of Indiana; successful teacher; leader in expeditions of scientific exploration; sixteen years an efficient officer of the State in the capacity of State Geologist; a life-long student of natural history; author of literary and scientific books; a nation-wide authority on beetles, weevils and locusts; one of the foremost naturalists of America; interpreter of nature's beauty in woodland and meadow, by wayside and stream, in stones and in flowers.

"Mr. President, this distinguished alumnus has been recommended by the faculty for the degree of doctor of laws."—Indianapolis *Star*, June 11, 1921.

We have the pleasure of congratulating also Mr. William Schaus, the well-known Lepidopterist, of the Department of Insects, United States National Museum, on the conferring of the degree of M.A. upon him by the University of Wisconsin, last June.

The Mulford Biological Exploration.

The scientific expedition, known as the Mulford Biological Exploration of the Amazon Basin, made its departure from New York on June 1st. Membership in the party includes Dr. H. H. Rusby, Dean of the College of Pharmacy, of Colombia University, as director; his secretary, personal assistant and taxidermist, George S. McCarty, of Woodbury, New Jersey; Dr. Wm. M. Mann, Entomologist, of the Bureau of Entomology, U. S. Department of Agriculture, and Honorary Custodian in the Division of Insects, U. S. National Museum; E. N. Pearson, Ichthyologist, representing Dr. C. H. Eigenmann, of the University of Indiana, and Dr. A. G. Ruthven, of the University of Michigan; Dr. Orland E. White, of the Brooklyn Botanic Garden, who goes as representative of the Brooklyn Botanic Garden and of the Bussey Institution of Harvard University, and Dr. F. L. Hoffman, Vice-President and Chief Statistician of the Prudential Life Insurance Co., of Newark, New Jersey, especially interested in the health, longevity and sanitary progress in the regions visited, particularly as regards American residents, temporarily or permanently settled under conditions of tropical life.

The voyage from New York to Mollendo, Peru, was delayed somewhat by engine difficulties, but was otherwise uneventful and made under most favorable weather conditions. The party passed through the Panama Canal on the 9th of June and reached Callao on the 15th, and while in port there the party visited Lima, the capital city of Peru, on invitation from the Peruvian Government. Here they were received by distinguishd officials and elaborately entertained.

The railroad journey from Mollendo to La Paz was made in easy stages, a stop being made at Arequipa, and other points on the way up, and every precaution was taken to protect against the effects of the rapid elevation and change of altitude.

Departure from La Paz, Bolivia, was made about July 9th, whence they proceeded by rail to Eucalyptus, the terminus of the railroad. From Eucalyptus to Pongo they traveled by auto truck over the new auto road recently completed by the Guggenheim interests in Bolivia. From Pongo a three days' journey by mule brought them to Canamina. After two or three weeks in making collections in the vicinity of Canamina and Espia, at the head of navigation on the Bopi River, the party proceeded by rafts down the river.

Important scientific work has already been accomplished. Taking advantage of every moment that could be spared from the details of arranging for their trip into the interior and the transportation of their equipment, collections have been made in and around Mollendo, Arica, Arequipa, Tiavava and La Paz. A large quantity of these materials, shipped just before the party left La Paz, has been received in Philadelphia.

The next objective will be Lake Rocagua, in which region they expect to spend a month or more exploring and collecting. Other important collections will be made in the Valleys of the Rio Beni and the Mamore. The Mamore River will be visited with the special object of exploring the region which yields Brazilian Ipecac. Temporary headquarters will next be established at Villa Bella, the western terminus of the Madeira-Mamore Railroad. The party will so arrange their work and time their journey as to reach Manaos about November of this year. Here they will receive large shipments of supplies for the second half of the journey and send home the collections already made.

According to present plans the party will then start out from Manaos early in 1922, ascending the Rio Negro and Rio Uaupes, for the purpose of exploring and collecting among the upper waters of the latter river and in some of the valleys and ravines along the eastern side of the Andes south of Bogota, Colombia. After crossing the mountains to Bogota, they will finally emerge at the coast at Barranquilla for their return journey.

Perhaps no other expedition that has gone into South America has ever entered the tropics so well protected medically against possibilities of fevers, skin diseases and the numerous tropical affections. These include great quantities of Antidysenteric Serum, for the prompt treatment of cases of dysentery, should any of the members of the party contract that disease,—a rather unlikely event, if all the members make the proper use of the means provided for the sterilization of the drinking water. Antipneumococcic Serum and Antitetanus Serum are also included among the supplies. Most important, however, is a quantity of Anti-snake-venom, which the Mulford Company took special pains to prepare for Dr. Rusby's party, and which they are supplying to them in small, sterile, hypodermic syringes, ready for instant use when occasion requires.

Members of the party have further protected themselves against disease by taking certain preventive measures. These include the well-known measures of vaccination against smallpox and the prophylactic inoculations against Typhoid Fever, the effectiveness of which no longer remains a matter of doubt. In view of the prevalence and dangers of pneumonia to which they are exposed, especially in the highlands of Bolivia, the members of the party have been provided with an Anti-pneumonia Vaccine, which should give them considerable protection, for some time at least. If it gives them a moderate protection against pneumonia for even six or eight weeks, this will carry them over the most dangerous period, i. e., until they have crossed the Andes and have descended from the highlands of Bolivia to the great plains. They are also supplied with various insecticides and repellents, which they will use to obtain relief from the annoyance of incessant attacks of hordes of insects.

Through Dr. Rusby's wide experience and foresight, all the possible needs of the party while in the field have been provided for in great detail. Among the supplies are large quantities of food-stuffs, such as canned meats, bacon, etc., purchased from surplus Army stores, and also a quantity of evaporated vegetables and soup powders. Their supplies and equipment, weighing nearly three tons, are packed in a large number of boxes of the proper size for transportation by mule or human porters.

The scientific work of the expedition is well provided for in the form of all kinds of scientific apparatus, collecting equipment and containers with abundant supplies of formaldehyde and other preservatives. A full supply of printed labels and note-books are among the details provided, so that collections may be sent back properly identified and ready for study.

The officials of the H. K. Mulford Company, which house is acting as sponsor and financial backer of this enterprise, have been especially gratified at the generous attitude which institutions of learning and Government Bureaus have taken toward this expedition.

The hope has been expressed in many quarters that the successful outcome of this enterprise will convince scientists and the public generally that complete and hearty co-operation between large industrial and scientific institutions can be obtained to their mutual benefit and on a thoroughly professional and altruistic basis.—R. H. HUTCHISON, Secretary, Philadelphia, Pa.

Entomological Literature

COMPILED BY E. T. CRESSON, JR., AND J. A. G. REHN.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded.

The numbers in **Heavy-Faced Type** refer to the journals, as numbered in the following list, in which the papers are published.

All continued papers, with few exceptions, are recorded only at their first installments.

The records of papers containing new genera or species occurring north of Mexico are all grouped at the end of each Order of which they treat.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

The titles occurring in the Entomological News are not listed.

2—Transactions of The American Entomological Society, Philadelphia. **4**—Canadian Entomologist, London, Canada. **5**—Psyche, Cambridge, Mass. **7**—Annals of The Entomological Society of America, Columbus, Ohio. **8**—The Entomologist's Monthly Magazine, London. **9**—The Entomologist, London. **10**—Proceedings of the Entomological Society of Washington, D. C. **11**—Annals and

Magazine of Natural History, London. **13**—Journal of Entomology and Zoology, Claremont, Cal. **14**—Proceedings of the Zoological Society of London. **20**—Bulletin de la Societe Entomologique de France, Paris. **22**—Bulletin of Entomological Research, London. **24**—Annales de la Societe Entomologique de France, Paris. **31**—Proceedings of the Entomological Society of Nova Scotia, Truro. **33**—Annales de la Societe Entomologique de Belgique, Brussels. **34**—Bulletin de la Societe Entomologique de Belgique, Brussels. **35**—Proceedings of the South London Entomological and Natural History Society, London. **36**—Transactions of the Entomological Society of London. **45**—Zeitschrift fur wissenschaftliche Insektenbiologie, Berlin. **48**—Wiener Entomologische Zeitung. **50**—Proceedings of the United States National Museum, Washington. **52**—Zoologischer Anzeiger, Leipsic. **54**—Proceedings of the Biological Society of Washington, D. C. **64**—Parasitology, London. **67**—Le Naturaliste Canadien, Quebec. **68**—Science, Lancaster, Pa. **69**—Comptes Rendus, des Seances de l'Academie des Sciences, Paris. **70**—Journal of Morphology, Philadelphia. **75**—The Anatomical Record, Philadelphia. **76**—Nature, London. **77**—Comptes Rendus des Seances de la Societe de Biologie, Paris. **91**—The Scientific Monthly, Lancaster, Pa. **100**—Biological Bulletin of the Marine Biological Laboratory, Woods Hole, Mass. **103**—Biologisches Centralblatt, Leipzig. **111**—Archiv fur Naturgeschichte, Berlin. **114**—Entomologische Rundschau, Stuttgart. **116**—Entomologische Zeitschrift, Frankfurt, a. M. **118**—Die Naturwissenschaften, Berlin.

GENERAL. Bonansea, S. J.—Importancia y necesidad de la entomologia aplicada a las artes, industrias y ciencias agrarias. (Mem. Soc. Alzante, Mexico, xxxvii, 363-80). **Calmbach, V.**—Die praparation der mikrolepidopteren, unter besonderer berucksichtigung der kleinsten arten unter den kleinen. **116,** xxxv, 35-6. **Cockerell, T. D. A.**—Some eocene insects from Colorado and Wyoming. **50,** lix, 29-39. **Deletang, L. F.**—Contribucion al estudio de la zoogeografia Argentina. (An. Soc. Cien. Argentina, xc, 227-77). **Dixey, F. A.**—The geographical factor in mimicry. **36,** 1920, 208-11. **Drz, A.**—Les symbiotes des insectes. (Rev. Scientifique, lix, 305-6). **Dustan, A. G.**—Entomogenous fungi. **31,** vi, 36-45. **Felt, E. P.**—Adaptations among insects of field and forest. **91,** xiii, 165-70. **Lamb, C. G.**—Insect oases. (Pro. Camb. Phil. Soc., xx, 347-9). **Longstaff, G. B.**—Obituary. **76,** cvii, 401. **McAtee, W. L.**—The selection of family names in zoology. (Jour. Wash. Acad. Sci., xi, 230-35.) **MacGregor, M. E.**—A new type of entomological killing-bottle. **22,** xi, 283-5. **Metcalf, Z. P.**—Some laboratory notes. **75,** xxi, 331-8. **Parker, R. N.**—Insects living in the snow at 14,000 feet. (Jour. Bombay Nat. Hist. Soc., xxvii, 639-40.) **Paul, G. P.**—Les insectes homicides. **67,** xlvii, 265-72. **Pearl, R.**—The biology

of death. Experimental studies on the duration of life. **91,** xiii, 144-64. **Pierce, W. D.**—Lectures in applied entomology. Ser. 1, Part 1, No. 2, Office equipment. **Popenoe, P.**—Biological control of destructive insects. **68,** liv, 113-4. **Pratt, J. S.**—Mr. Fred Enock's method of mounting heads of insects without pressure. (Jour. R. Micro. Soc., 1921, 141-6.) **Williams, C. B.**—Records of insect migrations in tropical America. **36,** 1920, 146-65.

ANATOMY, PHYSIOLOGY, ETC. van Bemmelten, J. F.—Das farbenmuster der mimetischen schmetterlinge. **52,** lii, 269-77. **Bordas, L.**—Etude antomique et histologique de l'appareil digestif des lepidopteres adultes. (An. Sci. Nat., Paris, Zoo., iii, 175-250.) Sobre la estructura y funcionamiento de los estigmas en el ortoptero Blatta orientalis. (R. Soc. Espan. Hist. Nat., 1921, 24-41.) **Brecher, L.**—Die puppenfarbungen des kohlweisslings, Pieris brassicae. (Archiv f. Entwickl. d. Organ., xlviii, 1-138.) **Breitenbecher, J. K.**—The genetic evidence of a multiple (triple) allelomorph system in Bruchus and its relation to sex-limited inheritance. (Genetics, vi, 65-90). **Bugnion, E.**—Les parties buccales de la blatte et les muscles qui servent a les mouvoir. (An. Sci. Nat. Paris, Zool., iii, 41-108.) **Busck & Heinrich**—On the male genitalia of the microlepidoptera and their systematic importance. **10,** xxiii, 145-52. **Buxton, P. A.**—The external anatomy of the Sarcoptes of the horse. On the Sarcoptes of man. **64,** xiii, 114-45; 146-51. **Carothers, E. E.**—Genetical behavior of heteromorphic homologous chromosomes of Circotettix. **70,** xxxv, 457-83. **Ceballos, G.**—Nota sobre un himenoptero ginandromorfo. (R. Soc. Espan. Hist. Nat., 1921, 79-81.) **Charlton, H. H.**—The spermatogenesis of Lepisma domestica. **70,** xxxv, 381-423. **Crampton, G. C.**—A further comparison of the wings of Zoraptera, psocids, and aphids, from the standpoint of phylogeny. **4,** liii, 110-17. The origin and homologies of the so-called "superlinguae" or "paraglossae" (Paragnaths) of insects and related arthropods. **5,** xxviii, 84-92. The sclerites of the head, and the mouth parts of certain immature and adult insects. **7,** xiv, 65-110. The terminal abdominal structures of the primative Australian termite, Mastotermes darwinensis. **36,** 1920, 137-45. **Dahl, F.**—Die abstammung der skorpione und das erste auftreten echter atmungsorgane. **52,** lii, 304-10. **Dehorne, A.**—Le mechanisme de la metaphase et de l'anaphase somatiques et ses consequences chez Corethra plumicornis. **69,** clxxii, 1684-7. **Dixey, F. A.**—Sexual dimorphism. **35,** 1920-21, 12-23. **Federeley, H.**—Die bedeutung der polymeren faktoren fur die zeichnung der lepidopteren. (Hereditas, Lund, i, 221-69.) **Garman, H.**—Some neglected setae of lepidopterous larvae. **7,** xiv, 145-49. **Giffard, W. M.**—The systematic value of the male genitalia of Delphacidae (Homoptera). **7,** xiv, 135-40. **Hasebrock, K.**—Die

Dopaoxydase, ein neues melanisierendes ferment im schmetterlingsorganismus. **103,** xli, 367-73. **Heikertinger, F.**—Ueber die angebliche giftwirkung des Coccinellidenblutes. **48,** xxxviii, 109-13. **Honda, H.**—Spermatogenesis of aphids; the fate of the smaller secondary spermatocyte. **100,** xl, 349-68. **Jameson & Atkins**—On the physiology of the silkworm. (Biochem, Jour., xv, 209-12.) **Kleine, F. R.**—Haben die Hylobius-arten einen stridulations-apparat. **45,** xvi, 137-42 (cont.). **Lamb, C. G.**—Venational abnormalities in the Diptera. (Proc. Camb. Phil. Soc., xx, 393-7.) **Lowe, H. J.**—Bees and scarlet-runner beans. **76,** cvii, 747. **Middleton, W.**—Some notes on the terminal abdominal structures of saw-flies. **10,** xxiii, 139-44. **Muttkowski, R. A.**—Studies on the respiration of insects. I. The gases and respiratory proteins of insect blood. **7,** xiv, 150-56. **d'Orchymont, A.**—La nervation alaire des coleopteres. **24,** lxxxix, 1-50. Apercu de la nervation alaire des coleopteres. **33,** lxi, 156-78. **Picard, F.**—Le determinisme de la ponte chez un hymenoptere terebrant le Pimpla instigator. **69,** clxxii, 1617-19. **Sanchez, D.**—Sobre la evolucion de las neuronas retiniana nas en los lepidopteros. (R. Soc. Espan. Hist. Nat., 1921, 129-50.) **Sturtevant, A. H.**—Genetic studies on Drosophila simulans. II. Sex-linked group of genes. III. Autosomal genes (Genetics, vi, 43-64; 179-207.) **Uichanco, L. B.**—Musculature and mechanism of movement of the tarsi in aphids. **5,** xxviii, 63-7. **Vogel, R.**—Zur kenntnis der geruchsorgane der wespen und bienen. **52,** liii, 20-8. Bericht uber ein gehororgan bei singzikaden. **118,** 1921, 427-31. **Wesenberg-Lund, C.**—Sur les causes du changement intervenu dans le mode de nourriture de l'Anopheles maculipennis. **77,** lxxxv, 383-6.

MEDICAL. Versluys, J.—Die verbreitung von seuchen durch insekten und andere gliederfussler im kriege. (Ber. Oberhes. hes. Ges. f. Natur.-u. Heilk. Giessen, vi, 170-219.)

ARACHNIDA, &c. Chamberlin, R. V.—The Julidae and Osobatidae in North America. **54,** xxxiv, 81-4. **Gunthorp, H.**—Cragin's collection of Kansas Myriapoda. **4,** liii, 87-91. **Moles, Cox & Nesbet**—A list of California Arachnida. **13,** xiii, 11-15. **Verhoeff, K. W.**—Chilognathen-studien (91. Diplopoden-anfsatz). **111,** 1920, A. 12, 23-80.

NEUROPTERA. Fahrenholz, H.—Lause verschiedener menschenrassen. (Zeit. Morph. u. Anthr., xvii, 591-602.) **Lacroix, J. L.**—Notes sur quelques neuropteres. (An. Soc. Linn. Lyon, lxvii, 45-59.) **Navas, R. P. L.**—Insectos Sudamericanos. (An. Soc. Cien. Argentina, xc, 52-72.) **Schwalbe, G.**—Uber die bedeutung der ausseren parasiten fur die phylogenie der saugetiere und des menschen. (Zeit. Morph. u. Anthr., xvii, 585-90.) **Williams, C. B.**—A blood sucking thrips. **9,** liv, 163-4.

McDunnough, J.—Two new Canadian may flies (Ephemeridae). **4,** liii, 117-20.

ORTHOPTERA. Hebard, M.—Studies in the Dermaptera and Orthoptera of Colombia. II. Dermaptera and orthopterous families Blattidae, Mantidae, and Phasmidae. **2,** xlvii, 107-169. **Uvarov, B. P.**—On the native country of the common house cricket (Gryllus domestica), with a description of a new var. **8,** lvii, 138-40.

HEMIPTERA. Bergroth, E.—Notes on some Cyminae. **33,** lxi, 165-8. **Brittain, W. H.**—The biology and stages of Gypona octolineata. **31,** vi, 12-22. **McAtee, W. L.**—Membracidae of the vicinity of Washington, D. C. **54,** xxxiv, 123-33.

Sanders & DeLong—Four papers on homopterous insects. (Penn. Dept. Agric., Gen. Bull. 346.)

LEPIDOPTERA. Frohawk, F. W.—On the appearance of Anosia plexippus in Britain. **9,** liv., 145-6. **Jones, E. D.**—Descriptions of new moths from southeast Brazil. **14,** 1921, 323-56. **Krueger, E.**—Eine neue Pieris-art Kolumbiens? Die kolumbische Pieris caesia. **114,** xxxviii, 26-7; 30. **Oberthur, C.**—Etudes de lepidopterologie comparee, xviii, Pt. 1. **Prout, A. E.**—Notes on some Noctuidae in the Joicey collection, with descriptions of n. sps. **11,** viii, 1-33. **Schaus, W.**—New sps. of L. in the U. S. National Museum. **50,** lix, 349-96. **Seitz, A.**—Die grossschmetterlinge der erde. Faun. Amer., 721-28. **Seitz & Draudt**—Die grossschmetterlinge der erde. Fauna Amer. Lief., 124, 125. **Whitehouse, F. C.**—Notes on the preparatory stages of Gnophaela vermiculata. **4,** liii, 101-3.

Bird, H.—New sps. and life histories in Papaipema. **4,** liii, 79-81. **McDunnough, J.**—A new Anisota species from Manitoba. **4,** liii, 75. Notes on a collection of Labrador L. **4,** liii, 81-7.

DIPTERA. Alexander, C. P.—The crane flies of New York. Part II. Biology and phylogeny. (Cornell Univ. Mem., 38.) **Austen, E. E.**—The prey of the yellow dung-fly, Scatophaga stercoraria. **11,** viii, 118-23. **Carter, H. F.**—A revision of the genus Leptoconops. **22,** xii, 1-28. **Johannsen, O. A.**—Oxycera tenuicornis or Euparyphus tenuicornis? **8,** lvii, 140-1. **Keilin, D.**—Supplementary account of the dipterous larvae feeding upon molluscs. **64,** xiii, 180-3. **Morley, C.**—Does Scenopinus fenestralis hibernate? **8,** lvii, 155. **Thompson & Thompson**—Studies of Zenillia roseanae, a parasite of the European corn borer. **10,** xxiii, 127-39.

Greene, C. T.—Two new sps. of diptera. **10,** xxiii, 125-27. **Malloch, J. R.**—Synopses of some N. American Anthomyiinae. **4,** liii, 76-9. Synopsis of the N. American species of the genus Helina. **4,** liii, 103-9.

COLEOPTERA. Achard, J.—Revision du genre Doryphora (Megistomela). **33,** lxi, 195-201. **Arrow, G. J.**—A contribution to the classification of the coleopterous family Endomychidae. **36,** 1920, 1-83. **Bernhauer, M.**—Neue Staphyliniden aus Sudamerika, besonders aus Argentinien. **48,** xxxviii, 101-8 (cont.). **Cros, A.**—Notes sur les larves primaires des Meloidae avec indication de larves nouvelles. **24,** lxxxviii, 261-97. **Fleutiaux, E.**—Etudes sur les Melasidae. **33,** lxi, 169-92; 223-42. **Jacques, H. E.**—A longlived woodborer. **68,** liv, 114. **Mequignon, A.**—Diagnoses provisoires de Chelonarium nouveaux et note synonymique. **20,** 1921, 161-2. **d'Orchymont, A.**—Palpicornia de l'Amerique du Sud. **33,** lxi, 244-55. **Wellhouse, W. H.**—The hawthorn blossom weevil (Anthonomus nebulosus). **7,** xiv, 141-44.

Schaeffer, C.—New sps. of N. American Clerid beetles of the genus Aulicus. **50,** lix, 151-59. **Wolcott, A. B.**—North American predaceous beetles of the tribe Tillini in the U. S. Nat. Mus. **50,** lix, 269-90.

HYMENOPTERA. Brethes, J.—Vespides, Eumenides et Sphegides Sudamericains de la collection Jules de Gaulle. **24,** lxxxviii, 391-410. **Cockerell, T. D. A.**—The earliest bees, wasps and ants. **68,** liv, 154-5. **Dustin, A. G.**—Some notes on the habits of Camposplex pilosulus, a primary parasite of the fall webworm. **31,** vi, 81-8. **Frison, T. H.**—Psithyrus laboriosus in the nest of bumblebees. **4,** liii, 100-1. **Gorham, R. P.**—Some notes on Apanteles hyphantria. **31,** vi, 46-50. **Rohwer, S. A.**—Notes and descriptions of neotropical sawflies of the subfamily Perreyiinae. **50,** lix, 161-67. **Santschi, F.**—Formicides Africains et Americains nouveaux. **24,** lxxxviii, 361-90. **Stumper, R.**—Etudes sur les fourmis. II. Observations sur le genese d'une piste du Lasius fuliginosus. **34,** iii, 84-8. III. Recherches sur l'ethologie du Formicoxenus nitidulus. **34,** iii, 90-7. **Viereck, H. L.**—First supplement to "Type species of the genera of ichneumonflies." **50,** lix, 129-50. **Waterson, J.**—Notes on fig insects, including descriptions of three new sps. and a new blastophagine genus. **36,** 1920, 128-36.

Rohwer, S. A.—Some notes on wasps of the subfamily Nyssoninae, with descriptions of n. sps. **50,** lix, 403-13. **Viereck, H. L.**—Descriptions of new Ichneumonidae in the collection of the Mus. Comp. Zoology, Cambridge, Mass. **5,** xxviii, 70-83. **Weld, L. H.**—American gallflies of the family Cynipidae producing subterranean galls on oak. **50,** lix, 187-246.

OBERTHÜR'S "ÉTUDES," Vol. XVII. An Appreciation and Some Notes.—It has been our pleasure recently to receive from M. Charles Oberthür, of Rennes, France, a copy of Volume XVII of his magnificent "Études de Lépidoptèrologie Comparée."

At the request of Dr. Barnes, M. Oberthür has again favored American lepidopterists with figures of a considerable number of the types, now in his possession, of obscure species of Boisduval and Guenée. We scarcely need mention the beauty of these figures. Anyone who is familiar with the incomparable work of M. Culot in former volumes of the "Études" will realize the excellent quality of the present figures. It is greatly to be regretted that in our own country the economic tendencies make it impossible to produce such works, but this only enhances our appreciation of M. Oberthür's publication. When we consider the remarkable quality of these illustrations, we do not wonder that our learned contemporary repeatedly insists: *"pas de bonne figure, pas de nom valable."* As it is, we should hesitate to apply the principle to some works with which we are familiar.

We feel that only a small number of North American Lepidopterists have access to the "Études," hence we have carefully examined the figures published for our benefit, and append a few notes on some of them. If the figure merely verifies our present treatment of a species we do not mention it.

Pl. DIV, ff. 4202, 4203. *Bombyx pseudoncustria* Bdv., ♂ and ♀. Neither of these figures agrees well with the series which stands as *californica* Pack. (=*pseudoncustria*) in coll. Barnes, but the superficial appearance of most *Malacosoma* species is so poor a basis for identification that this can be taken only as an indication that Boisduval's species may possibly take the place of one of those described more recently from California.

Pl. DV, ff. 4211, 4212. *Lycaena pseudargiolus* Bdv. The ♀, fig. 4212, corresponds very well to what we have been calling *pseudargiolus* from Pennsylvania, but our males are as heavily marked below as the females. The ♂, figure 4211, very closely resembles our series of the form *argentata* Fletcher, described from Manitoba and Assiniboia. This resemblance suggests that our knowledge of the forms of this variable species is by no means stable yet. It will be interesting to see specimens from the southeast, whence Boisduval's types probably came.

Pl. DVI, f. 4227. *Macaria infimata* Guenée, described from Cayenne. This figure is not at all like the species which we have been calling *infimata*, nor does our series agree with Guenée's description. Apparently this name must be superseded by *gnophosaria* Gn., the type of which is figured on the same plate, fig. 4230. We have been unable to find any North American species which compares well with the figure of *infimata*.

Pl. DVI, f. 4231. *Tephrina sabularia* Gn. is unknown to us. It appears to be correctly placed in the "Check List."

Pl. DVI, ff. 4232, 4233. *Psamatodes nicetaria* Gn., described from Haiti, is likewise unknown to us.

Pl. DVII, ff. 4237, 4238. *Ypsipetes pluviata* Gn. This species stands in the "Check List" as a synonym of *Hydriomena coerulata* Fab. Our series compares very well with fig. 4238 but we are unable to find any specimens in the collection which match fig. 4237 well.

Pl. DVII, fig. 4240. *Coremia defensaria* Gn. This figure does not compare well with any specimens in our series of *Xanthorhoe convallaria* form *defensaria*, but since the species is extremely variable and the figure is not conspicuously different, we prefer to retain the name for the present as it has recently been used.

In conclusion we wish to thank M. Oberthür sincerely for his continued generosity to North American Lepidopterists in publishing figures useful to them chiefly, if not exclusively. In this we feel that we do not speak for ourselves alone, but for all of our colleagues on this side of the Atlantic. Nor do we feel that our duty and privilege is satisfied merely by an appreciation of the scientific value of these works, for their aesthetic qualities and the high standard which they must set for future publications may not lightly be passed over—WM. BARNES, M.D., and A. W. LINDSEY, Ph.D., Decatur, Illinois.

EIGHTEENTH REPORT, STATE ENTOMOLOGIST OF MINNESOTA to the Governor. By A. G. RUGGLES. Agricultural Experiment Station, University Farm, St. Paul, Minnesota. December 1, 1920. Mailed June 18, 1921. 210 pp., 43 text figs., 10 pls.—In his general report, entitled "Insect Notes for 1920," Mr. Ruggles mentions that "Some new insects, as the apple maggot, *Rhagoletes pomonella* Walsh, and the asparagus beetle. *Crioceris asparagi* Linn., have made their appearance in the state. These have already caused considerable damage." *R. pomonella* had, indeed, been found on *Crataegus* in Minnesota in 1898, but the first reports of its injuring cultivated fruit came in 1918. *C. asparagi* "was found for the first time in Minnesota in 1919." A wet June in 1920 and the use of much poison bait prevented much grasshopper damage; there was a notable absence of the common varieties of cutworms which work in fields and gardens in the spring; the army worm failed to form true marching armies, due apparently to the wetness of late June and early July "and many favorable places for egg laying could be found in any field. This accounted for the smallness of the armies and their quite uniform distribution over the section." An interesting account of the relation of squirrels and insects to defoliation is given. The red squirrel (*Sciurus hudsonius* Erx.), seeking the basal leaf galls of the cottonwoods, caused by the plant louse, *Pemphigus populicaulis* Fitch, and eating them as it would a nut, the "leaf portion became free and dropped. From thirty to forty seconds would suffice for one gall. He went from leaf to leaf with great rapidity. The feasting was kept up for an hour

or sometimes longer, until the hunger was satisfied. One squirrel could therefore do considerable damage. Since that time the operation has been seen many times."

"Observations on Mites Infesting Flour and Mill Feed" by R. N. Chapman, lead to the conclusion that to prevent a general outbreak of these pests, the place must be kept "perfectly clean, permitting no accumulations of flour and other material." S. A. Graham discusses the "Factors influencing the Subcortical Temperatures of Logs" with reference to the destruction of wood-boring insects. W. C. Cook gives us "Studies on the Flight of Nocturnal Lepidoptera," treated statiscally and correlatively with meteorological factors. William Moore deals with "The Principles of Film-forming Sprays," while the greater part of the volume is occupied by two taxonomic papers: "Contribution to the Knowledge of the Group Aphidina, Family Aphididae," by O. W. Oestlund (pp. 63-75), with interesting remarks on the determination of relationships and phylogeny in general, and "Monograph of the North American Species of Deraeocoris (Heteroptera, Miridae)," by Harry H. Knight (pp. 77-210), in which 54 species and 22 varieties are recognized from North America, 37 species and 20 varieties being described as new. The bugs of this genus sometimes feed upon the sap of plants, but, in some species at least, rather upon the aphids found on particular plants; where this latter habit prevails the immature forms are often "covered with a white, powdery, flocculent material, and are thus in the early instars, not readily distinguished from the aphids among which they live." A hitherto unnoticed structure in the Miridae has been detected in this genus—a comb of spine-like teeth at the distal end of the fore tibia, used for cleaning the rostrum and antennae. Keys applicable to both sexes are given and the male genital claspers of each species are figured.

The present report maintains the high rank which we are accustomed to associate with the Minnesota State Entomologists.—P. P. CALVERT.

Doings of Societies.

The American Entomological Society.

Meeting of June 7, 1920, in the hall of The Academy of Natural Sciences of Philadelphia. Nine persons present, the President, Dr. Skinner, in the chair. Mr. David E. Harrower and Mr. Frank R. Mason were elected to membership.

HYMENOPTERA.—Mr. Frost exhibited several insects in resin determined by Mr. Cresson as *Andricus seminator*, Family Cynipidae.

ORTHOPTERA.—A few remarkable Phasmids, or Walking-sticks, were exhibited by Mr. Hebard, among which were *Ectatosoma popa* and *Eurycarrtha horrida*. The genus *Timema* was discussed.

R. C. WILLIAMS, *Recording Secretary.*

Meeting of February 24, 1921, at The Academy of Natural Sciences of Philadelphia. Members present 6, Contributors 2, Visitors 5. Dr. Skinner presiding.

HYMENOPTERA.—Mr. Baylis displayed a specimen of a Hymenopterous insect which emerged from a pupa of *Catocala amatrix*.

LEPIDOPTERA.—Mr. Kisliuk, Jr., reported much of the nursery stock from Orleans, France, has contained the nests of the Brown-tail Moth. He attributes this to the lack of experience of the French inspectors employed following the war. Another moth, common in Europe, has been found on the stock but has failed to establish itself, possibly due to climatic influences.

Mr. Harrower exhibited specimens of the Satyridae belonging to the genera *Callitaera*, *Pierella*, *Hactera*, and *Antirrhaea* collected in Central America, and remarked upon their habits and the difficulty of capture. These butterflies haunt the darkest forests, and seldom are seen at a height of over two feet from the ground.

Dr. Skinner exhibited a specimen of *Papilio fletcheri*, an aberration of *P. turnus*, and described its capture at White River, Ontario.

GENERAL.—Dr. Skinner displayed portions of a collection of insects made by G. B. Fox on the upper Essequibo River, British Guiana; included were many large and showy Lepidoptera, Coleoptera, and Hymenoptera.—D. E. HARROWER, *Recording Secty.*

Meeting of April 28, 1921, in the same hall. Members present 8, Contributors 3, Visitors 3. Dr. Skinner presiding.

HYMENOPTERA.—Dr. L. O. Howard described the work of securing parasites upon destructive insects, with special reference to the Wooly Louse of Apple (*Schizoneura lanigera*). Parasitized examples of the above ground form were taken to France, New Zealand, Uruguay, and Africa, and in every case survived the changes in climate incident to transportation.

GENERAL.—Mr. Hebard gave a very interesting illustrated account of a trip taken to Colombia, South America, last summer (1920) in company with Mr. Rehn. At Cartagena, Porto Colombia and Santa Marta they found the coast to be quite arid, the vegetation resembling that of our western deserts, and insect life scant. Upon penetrating inland from Santa Marta, they entered a mountainous country where vegetation became luxuriant and insect life correspondingly rich. Many interesting forms of Orthoptera, Coleoptera, and Lepidoptera were secured. Few insects came to the lights, but collecting with a hand-torch proved effective. Many rare Orthoptera were found in the curled-up, dry leaves of the Cecropias. The large Bromeliads also sheltered rare forms, not only insects, but even frogs and a salamander.—D. E. HARROWER, *Recording Secty.*

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.

Lepidoptera.—Offer in exchange for rare S. American Lepid., about 400 Rhopalocera in papers from S. Cameroun (Africa), mostly Papil. Pierid, Danaid, Satyrid and Nymphal.—J. H. Jurriaanse, Shiekade 75, Rotterdam, Holland.

Lepidoptera—Offer many palae. species, especially from the Swiss and French Alps with full data to exchange. Also have many papers and books on Lepidoptera and other insects. Albert Oertel, Riebeck Str., 5, Leipzig, Germany.

Pacific Coast Lepidoptera for exchange by our Club. Send your list. Exchange Dept., Entomological Section, Lorquin, Nat. Hist. Club. Address Mr. Geo. B. Pearson, manager, 812 Stevenson Ave., Pasadena, Calif.

Japanese and Formosan Butterflies will be exchanged by S. Satake, 425 Nakashibuya, Tokyo, Japan.

Wanted—To purchase living material of any species of the genus Apantesis.—Dr. E. T. Learned, Fall River, Mass.

Cynipidae, galls or the bred makers, desired, to determine or for exchange. Also want to buy a copy of Das Tierreich, XXIV, Cynipidae. Alfred C. Kinsey, Bloomington, Indiana.

Coleoptera—Common species of this region offered in exchange for Coleoptera from any part of the world. Correspondence invited. Basil E. Montgomery, Poseyville, Ind.

Wanted—I would like offers on surplus Lepidoptera of any pretty Kinds. Butterfly Box, 7 Bromfield St., Boston, Mass.

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